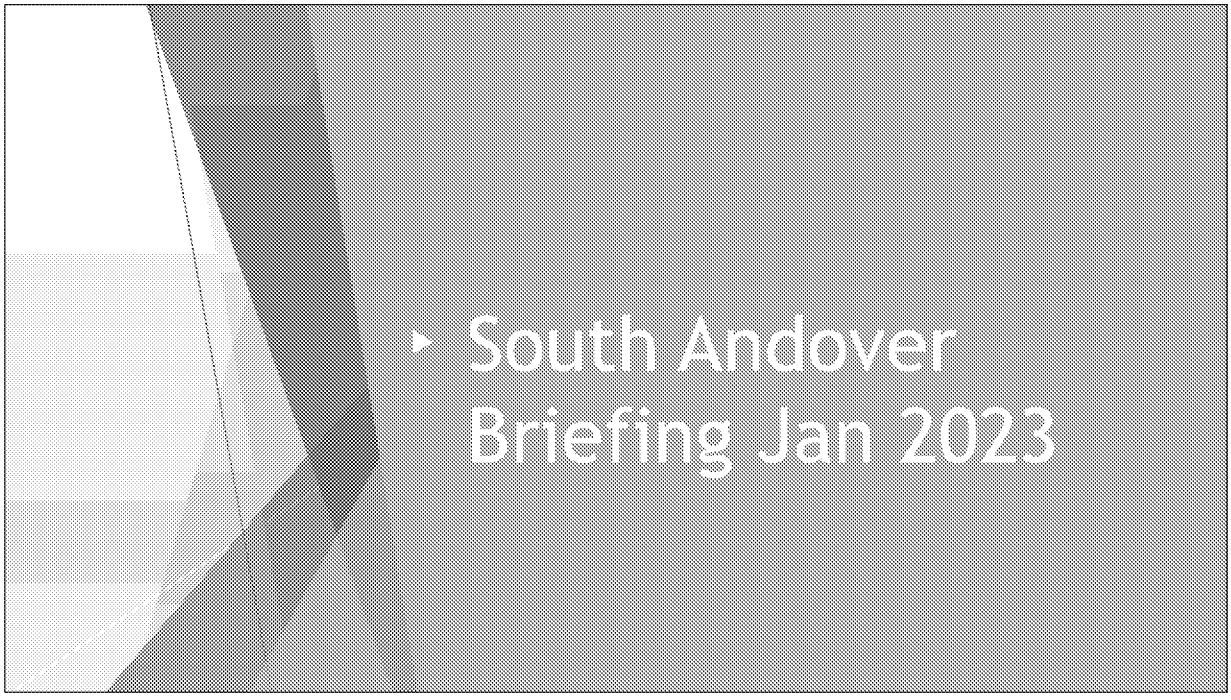
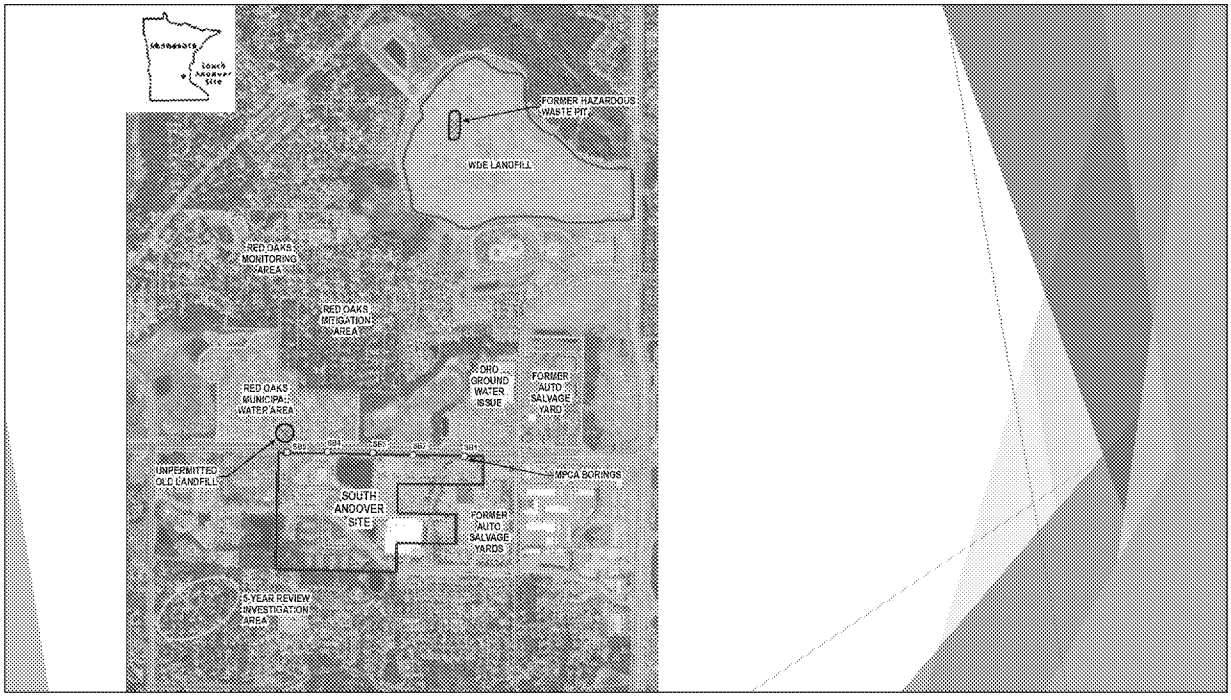
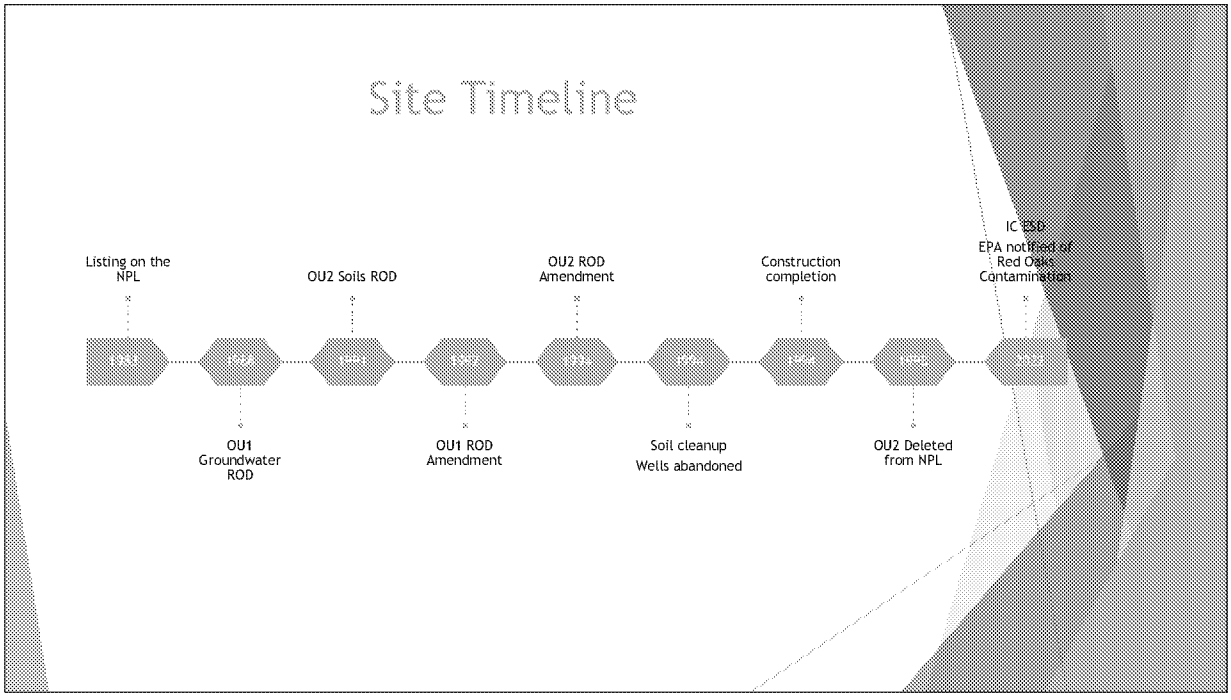

South Andover
Briefing Jan 2023

Red Oaks Neighborhood Update

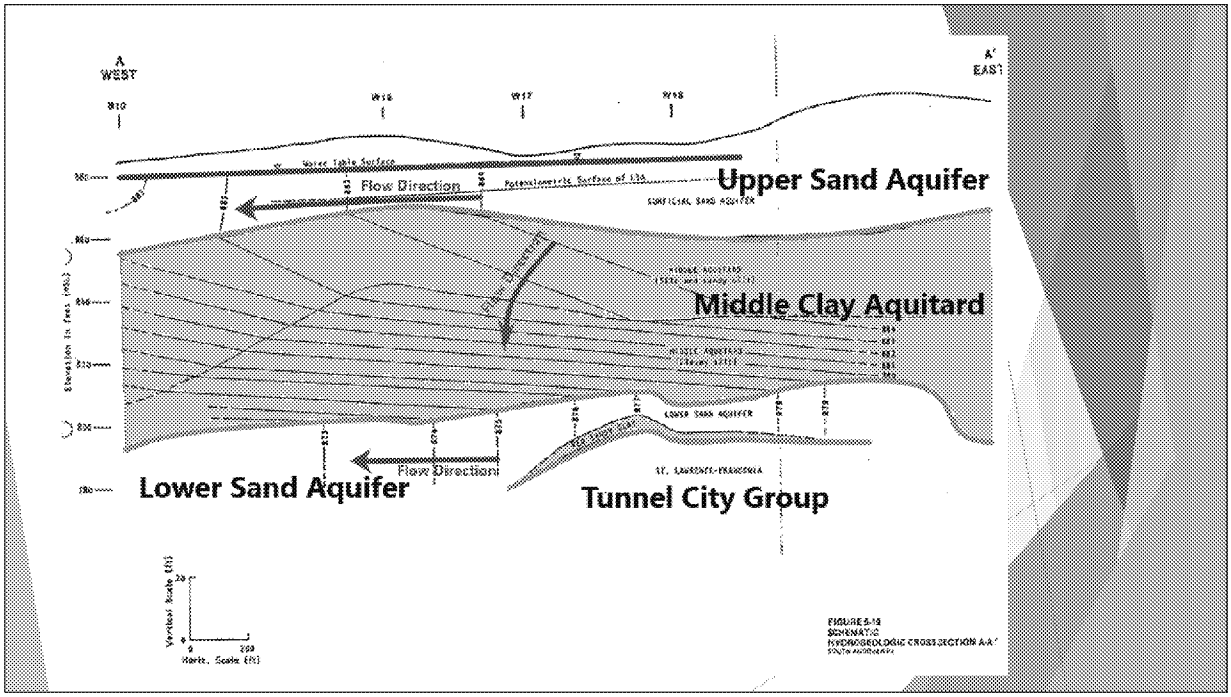
- MPCA data
- PRP's technical evaluation and position
- EPA's technical evaluation and position
- Next steps

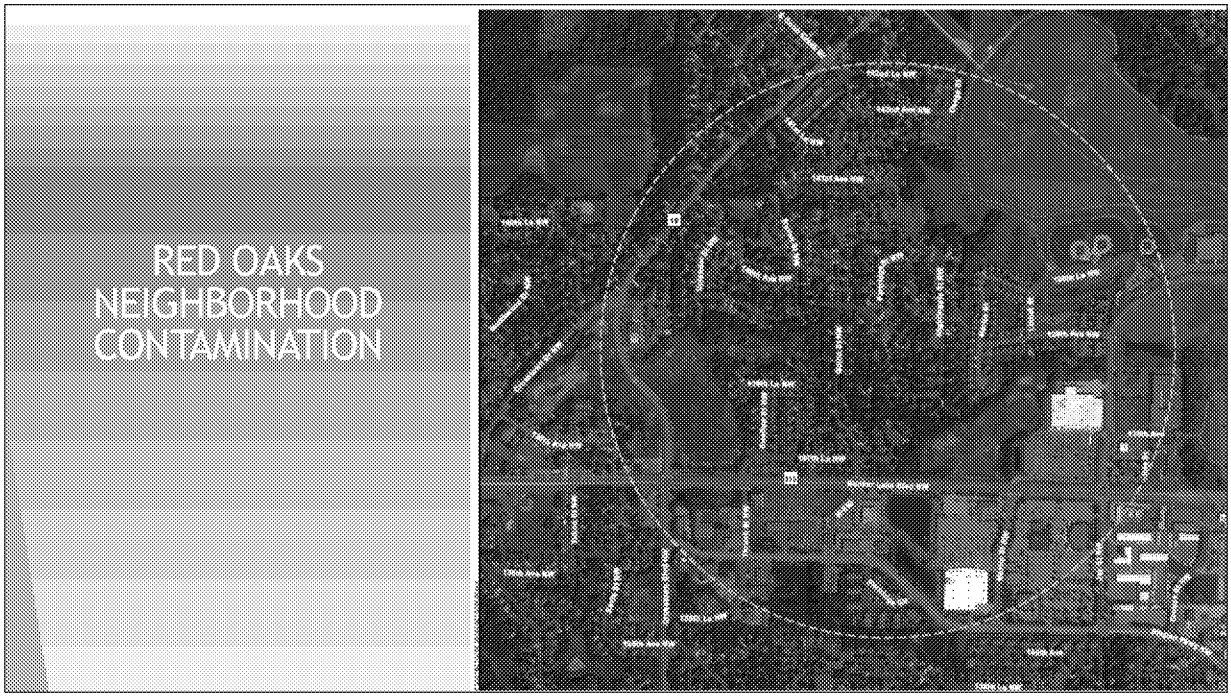


Located in City of Andover, Minnesota
- 50 Acre Site operated since 1950s Former auto salvage, storage, disposal and incineration of inks, paints, adhesives, solvents and other wastes, 3 million waste tires
Residential development began north of the site in 1970s
Now area around the site is primarily residential
Site has been redeveloped as Target, grocery, drug store, other retail establishments.

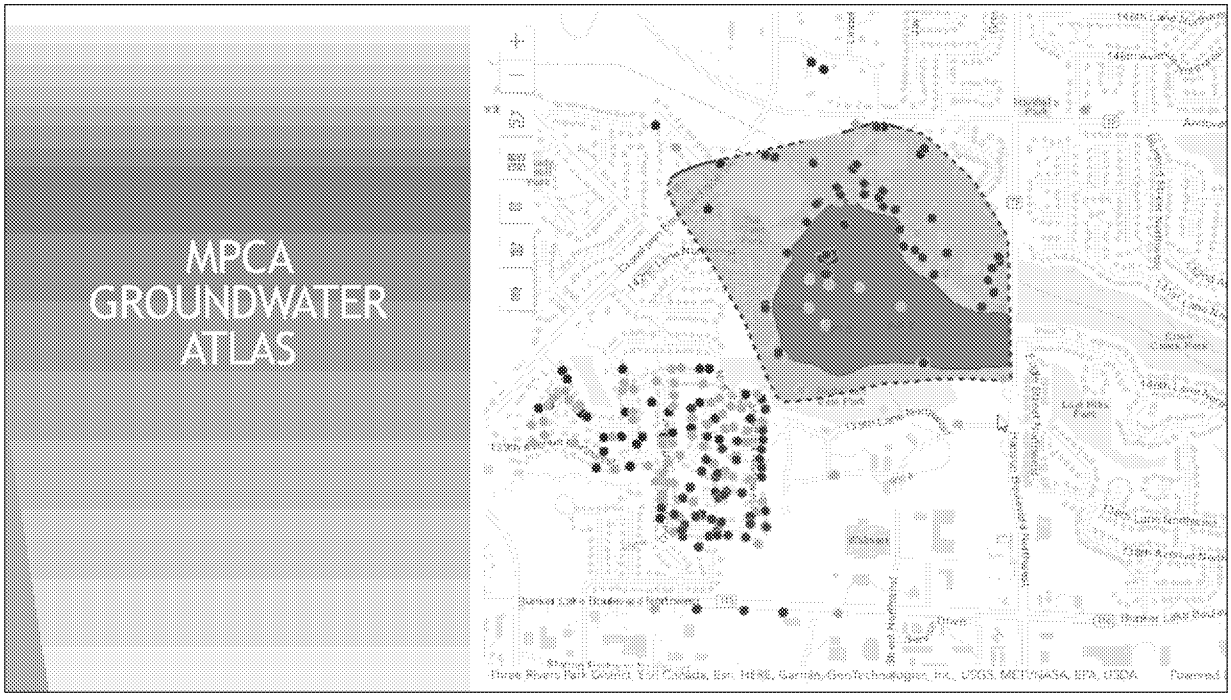


- 1983 – Listed on the NPL
- 1988 – OU1 Groundwater ROD
Extraction of groundwater
Providing municipal water
Monitoring GW movement
ICs
COCs: 111-trichloroethane, 112-trichloroethane, methylene chloride, PCE, toluene, VC
- 1991 OU2 Soil ROD
Excavate PAH contaminated soils
Excavate PCB contaminated soils
Sample and dispose of 20 drums
COCs: PAHs, PCBs, lead and antimony
- 1992 OU1 ROD amendment deleted three of the four major remedy components, leaving monitoring for five years, reassessment if anything found. Thought was there was no discrete plume to be found, and soil remedy would remove any remaining source.
1993 Entered into CD with South Andover Administration Group to implement the remedy
1994 OU2 Soils ROD Amendment – updated MCLs, stated groundwater monitoring would end three years after soils excavated
1994 soil cleanup, selected wells abandoned according to OU1 Amendment
1994 Site achieved construction completion
1998 Site soils OU deleted from NPL – discovery of a VC plume to the SW of the Site
2022 ESD issued regarding ICs (I/R from FYR) and EPA notified of Red Oak Contamination

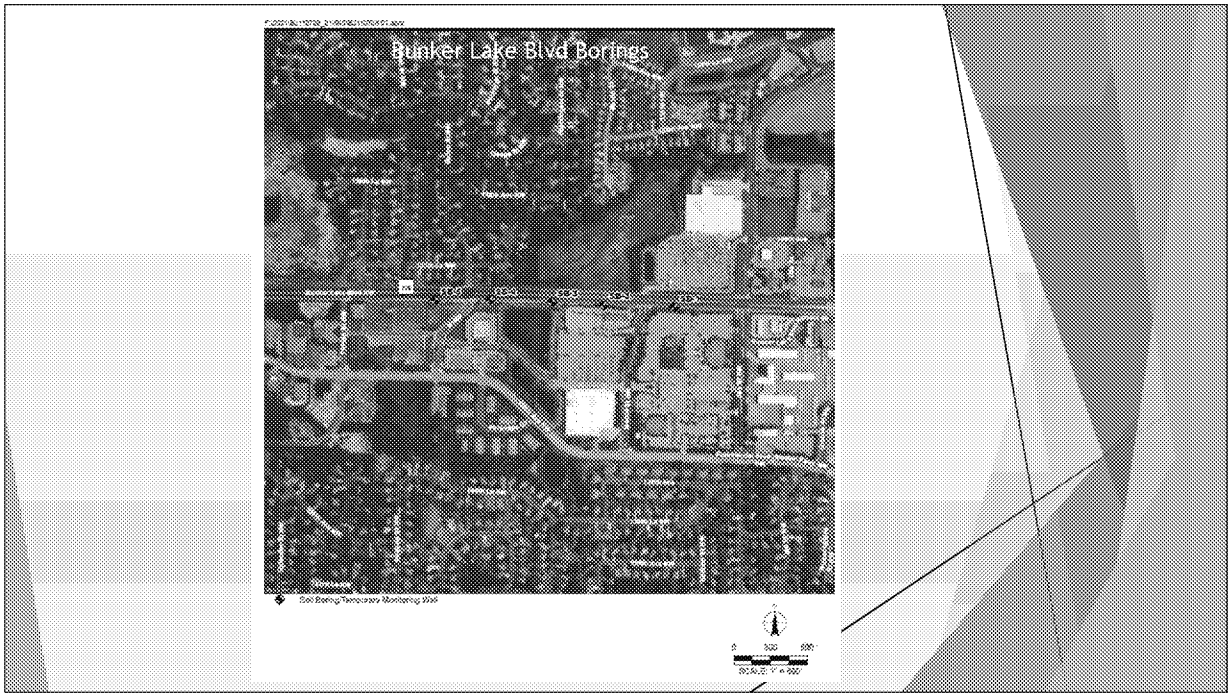

A
WEST
A'
EAST
Flow Direction
Upper Sand Aquifer
Middle Clay Aquitard
Lower Sand Aquifer
Tunnel City Group
Flow Direction



EPA notified in February 2022
WDE landfill to NE
South Andover Site to SE
MPCA has been leading efforts to determine the source of contamination



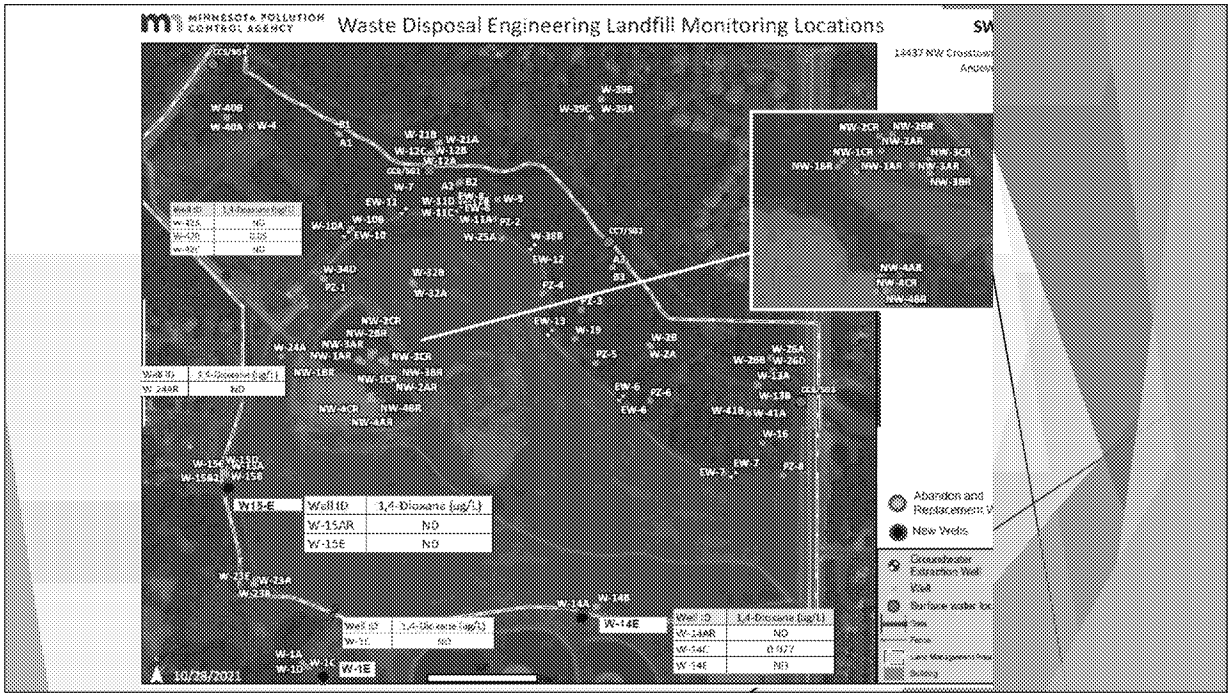
Most recent sampling of residential wells in October 2022 ~ 80 residential wells and 90 landfill wells. Still awaiting results. Results shown are from previous sampling event in August 2022 and show 1,4-D and PFAS compounds over the MN health risk Limits. 1.4-Dioxane was found up to 2,200 ug/L in one residential well with highest concentrations of 1,4-dioxane in the southeastern area of the Red Oaks Neighborhood. The concentrations of 1,4-D decrease as you go north within the residential neighborhood.
August 2022 field work – sampling five boreholes for 1,4-D and PFAS resulted in trace to 840 ug/L detection in SB-2 at 96-100ft bgs



Borings advanced along the N border of SA Site in Aug 2022. Temp well results show highest 1,4-D result from SB2 at 96-100'bgs
Report provide to PRPs in December 2022

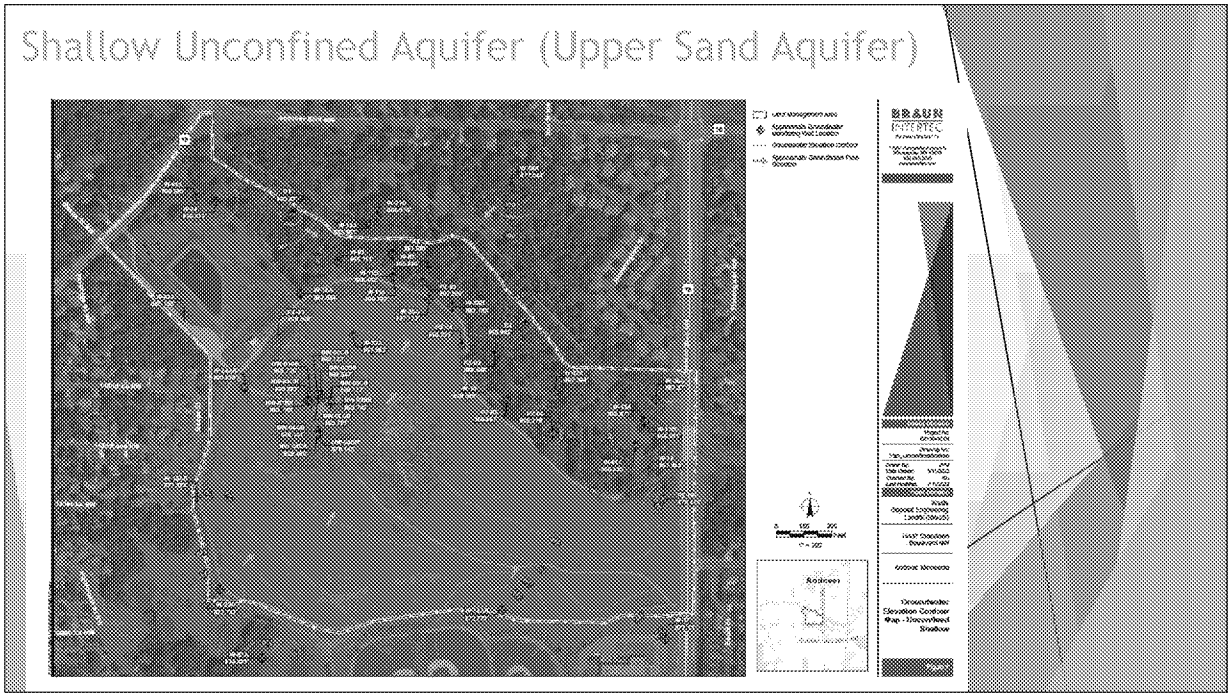
Bunker Lake Blvd Groundwater Investigation

Compound/Parameter	CAS No.	Sample Location, Sample Name, Sample Depth, and Date Collected													Drinking Water Criteria (µg/L)	Source-Date
		SB-1				SB-2			SB-3			SB-4				
		SB-1S	SB-1S-FR	SB-1D	SB-1ISA	SB-2S	SB-2D	SB-2ISA	SB-3S	SB-3D	SB-3ISA	SB-4S	SB-4D	SB-4ISA		
		13-18'	13-18'	40-45'	80-84'	10-15'	41-45'	95-100'	11-16'	41-45'	83-87'	10-15'	41-45'	95-100'		
		6/6/2022	6/6/2022	6/6/2022	7/19/2022	6/7/2022	6/7/2022	7/21/2022	6/8/2022	6/7/2022	7/21/2022	6/8/2022	6/8/2022	7/22/2022		
Volatile Organic Compounds (VOCs) (µg/L)																
Acetone	67-64-1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	4,000	HRL-15
Benzene	71-43-2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.065	<0.50	<0.50	<0.50	<0.50	2	HRL-09
Bromodichloromethane	75-27-4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	6	HRL-95
Chloroform	67-66-3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.1	20	HRL-13
1,1-Dichloroethane	75-34-3	<1.0	<1.0	3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	80	RAA-16
1,2-Dichloroethane	107-06-2	<0.20	<0.20	0.57	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1	HRL-15
Methyl ethyl ketone (MEK, 2-Butanone)	78-93-3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	25	4,000	HRL-94
Tetrahydrofuran	109-99-9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	600	HRL-15
Toluene	108-88-3	<1.0	<1.0	<1.0	5.6	<1.0	<1.0	6.1	<1.0	<1.0	2.9	<1.0	<1.0	<1.0	200	HRL-15
Trichloroethene (TCE)	79-01-6	<0.10	<0.10	0.12	<0.10 [illegible]	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.4	HRL-15
Vinyl chloride	75-01-4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.053	<0.050	<0.050	<0.050	<0.050	0.2	HRL-09
All other reported VOCs	—	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	—	—
Perfluorinated Compounds (PFCs) (µg/L)																
Perfluorobutanesulfonate (PFBS)	29420-49-3/ 375-73-5	0.004 J	0.004 J	0.006 J	0.004 J	0.003 J	0.059	0.004 J	<0.015	<0.015	0.003 J	<0.015	<0.015	<0.015	0.1	HBV-22
Perfluorobutanoic acid (PFBA)	375-22-4	0.031	0.032	0.028	0.041	<0.015	0.047	0.039	<0.015	<0.015	0.035	0.004 J	<0.015	0.009 J	7	HRL-18
Perfluorohexanesulfonate (PFHxS)	355-46-4	0.020	0.020	0.033	0.016	0.029	0.075	0.007 J	0.002 J	0.006 J	<0.015	<0.015	<0.015	<0.015	0.047	HBV-20
Perfluorohexanoic acid (PFHxA)	307-24-4	0.006 J	0.007 J	0.006 J	0.006 J	<0.015	0.080	0.009 J	0.005 J	0.004 J	<0.015	0.007 J	0.004 J	<0.015	0.2	HBV-21
Perfluorooctanesulfonate (PFOS)	1763-23-1	0.035	0.036	0.010 J	<0.015	0.099	0.005 J	<0.015	0.088	0.065	<0.015	0.029	0.004 J	<0.015	0.015	HBV-20
Perfluorooctanoic acid (PFOA)	335-67-1	0.035	0.033	0.020	0.011 J	0.002 J	0.035	0.006 J	<0.015	<0.015	<0.015	0.005 J	<0.015	<0.015	0.035	HRL-22
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.006 J	0.006 J	0.003 J	0.006 J	<0.015	0.044	0.005 J	<0.015	<0.015	<0.015	0.003 J	<0.015	<0.015	NE	—
Other Parameters (µg/L)																
1,4-Dioxane	123-91-1	<0.049	<0.049	0.48	0.59	2.5	1.6	(40) [illegible]	<0.049	0.071	12	<0.049	<0.049	0.058	1	HRL-13

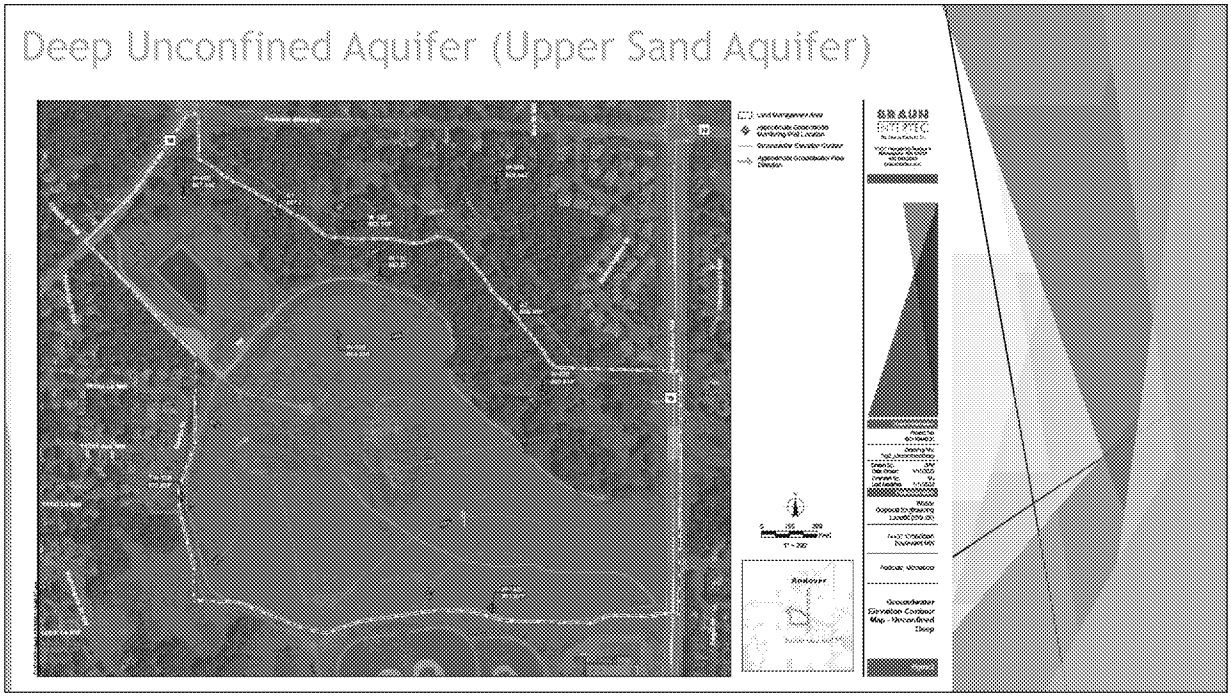


MPCA October 2022 field work consisted of:
Installing five monitor wells on the southern perimeter of WDE landfill, sampling for 1,4-D and PFAS
Re-Sampling of ~90 residential wells
WDE Sitewide sampling of existing monitor wells. Sampling concluded week of Oct 17, still waiting for final report but received draft GW flow maps from MPCA for the WDE landfill

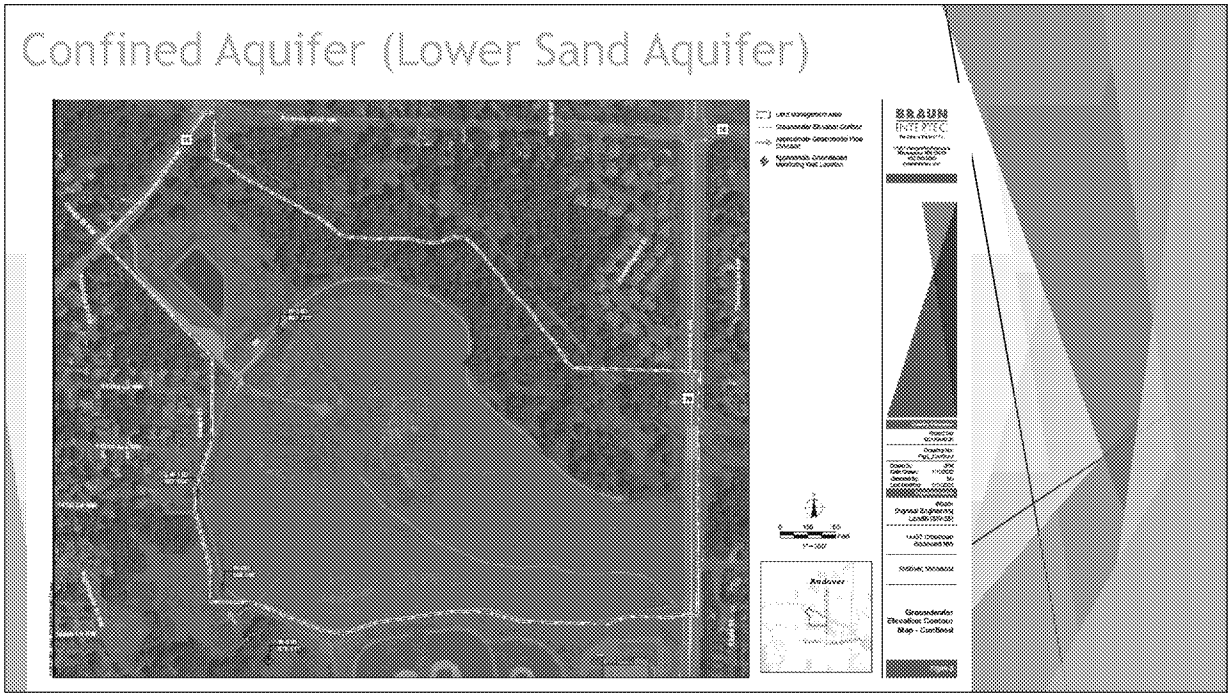
Results show little to no 1,4-D contamination at the southern perimeter of the landfill. This is enough data for MPCA to transfer the project from the closed landfill program back to their Superfund division. The transfer will occur the week of Oct 31.



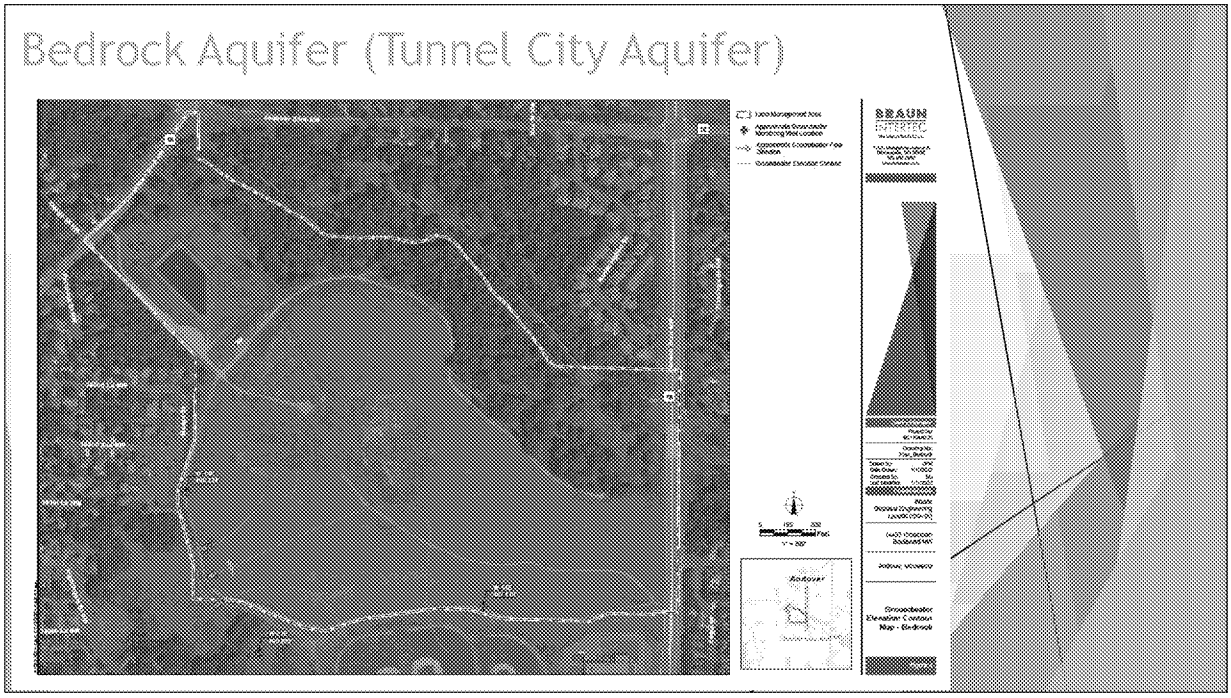
Shallow wells screened at the water table ~10-30ft bgs



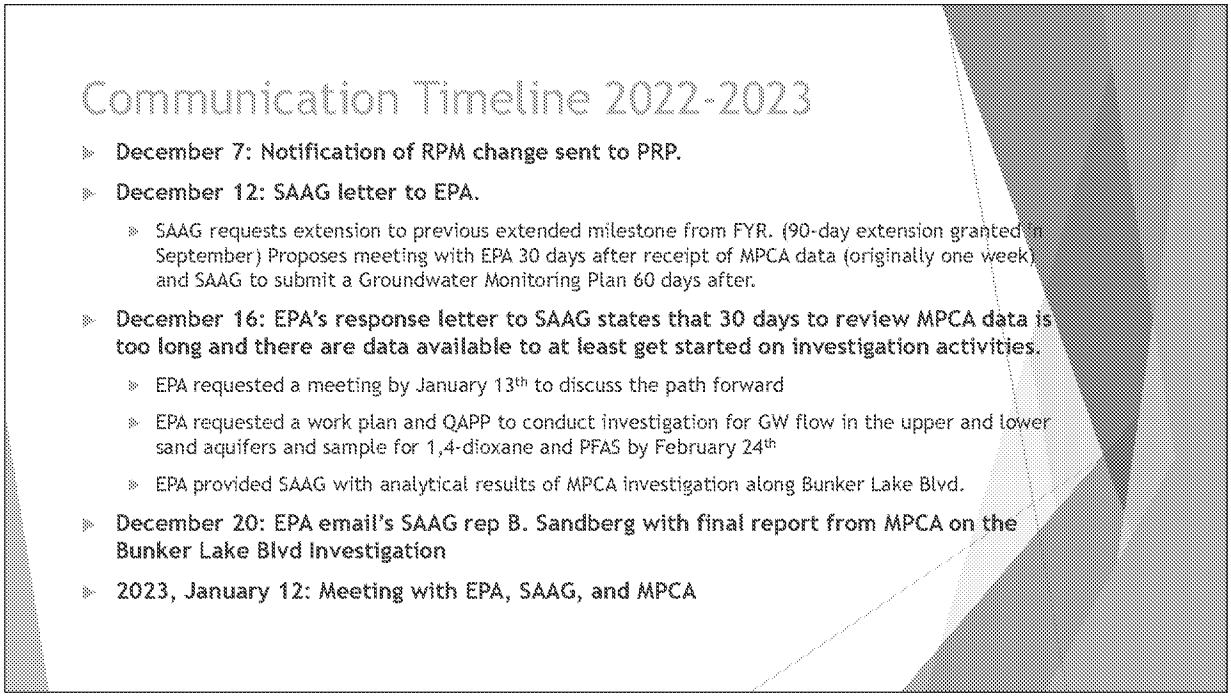
Deep unconfined wells screened above the confining layer ~32-60ft bgs



Confined wells are screened just below the confining layer ~100-107ft bgs



No confirmation on the depth of the bedrock wells



PRPs have held off investigation until the data from MPCA has been distributed. In December the PRPs had agreed to conducting some investigation with 3 nested well sets to install in the northern portion of the Site.

South Andover Administrative Group (SAAG) Position

- **Technical data does not link SA Site to the Red Oaks neighborhood**
  - Regional GW flow is to the southwest.
  - RI data shows flow to the southwest within the lower sand aquifer and to the west/southwest for the upper sand aquifer
    - Most of the Red Oaks private wells are in the bedrock or the lower sand aquifer
  - There is little to no 1,4-dioxane impacts in the upper sand aquifer from the borings along Bunker Lake Blvd
  - The thick middle silt/clay aquitard is a hydraulic barrier
  - There is no defined VOC source at the SA Site (soils removed from the Site)

LOWER SAND AQUIFER SOUTHERLY GW FLOW

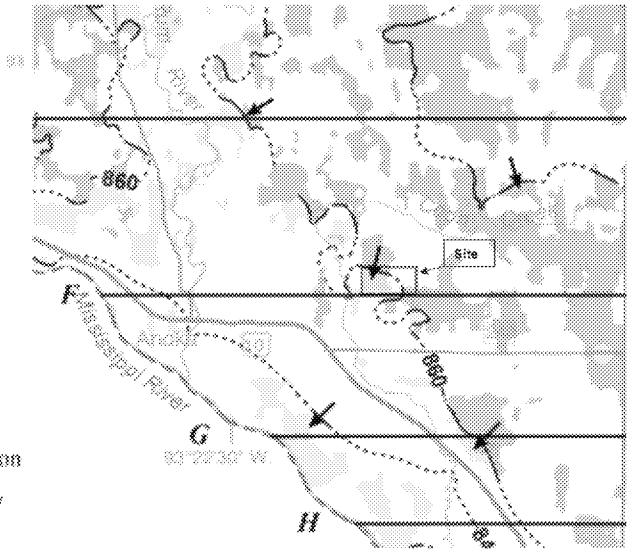
Potentiometric surface elevation of aquifers (feet)

- > 940–980
- > 900–940
- > 860–900
- > 820–860
- > 780–820
- Aquifer not present

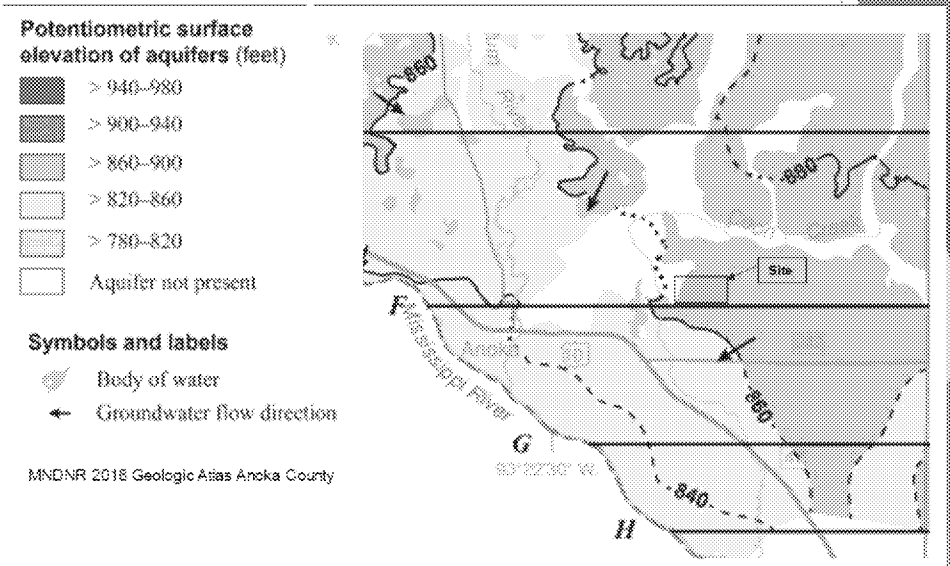
Symbols and labels

- Body of water
- Groundwater flow direction

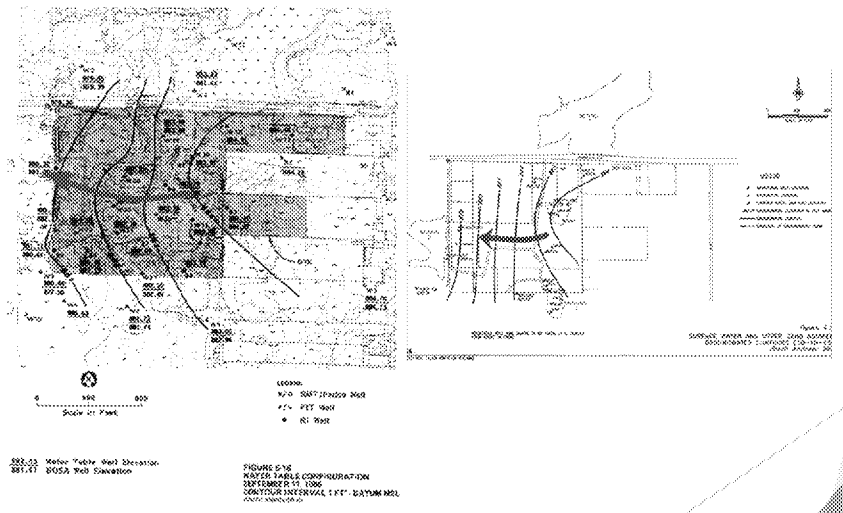
MNDNR 2016 Geologic Atlas Anoka County



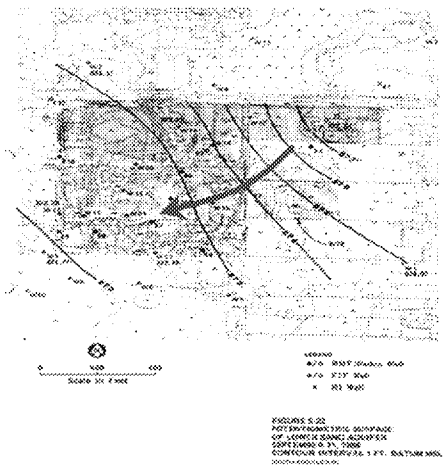
UPPER TUNNEL CITY AQUIFER SW GW FLOW

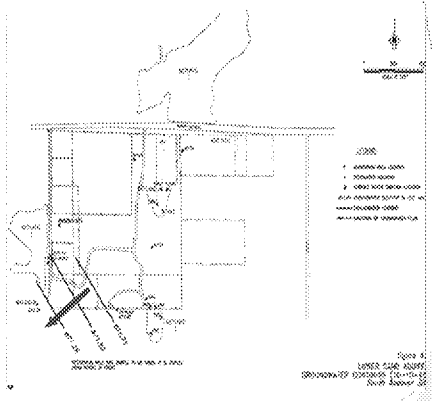


SITE-SPECIFIC UPPER SAND AQUIFER GW CONTOURS (‘88 RI & ’95 Semi-annual report)

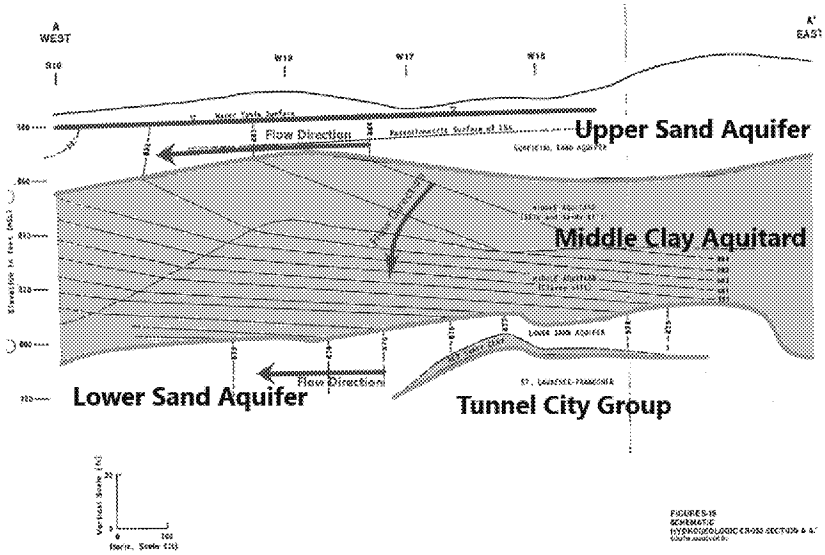


SITE-SPECIFIC LOWER SAND AQUIFER GW CONTOURS ('88 RI & '95 Semi-annual report)





THICK CLAY AQUITARD PRESENT ACROSS THE SITE



Map from SAAC group
Source must be coming from the NE

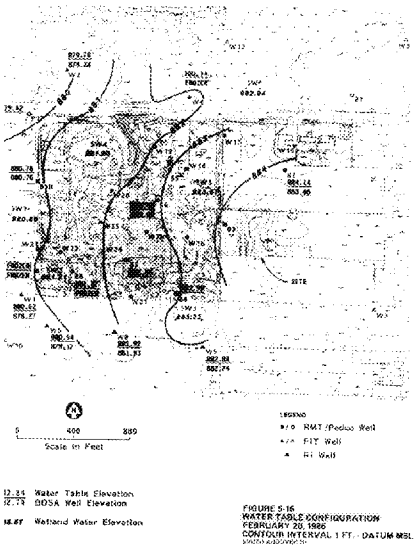
SAAG Position

- 1,4-Dioxane and PFAS are outside the scope of the CD and the ongoing SA GW ROD remedy
- Other possible sources exist to the north of Bunker Lake Blvd
- SAAG is not the appropriate party to conduct further regional studies

EPA's Technical Evaluation

- Uncertainty due to additional info acquired after 1988, 1991 RIs, including changes to conditions surrounding Site
  - The highest concentration of 1,4-Dioxane in the Red Oaks Neighborhood is clustered in the southeast corner and concentrations decrease as you move north
  - 1,4-Dioxane found in SB-2 along the northern boundary of SA at ~100 bgs with concentration of 840 ug/L
- Uncertainty due to insufficient information in groundwater flow north of the Site
  - 1988 RI does show some radial GW flow in the upper sand aquifer from the northeastern portion of the Site.
  - Increased pumping in the neighborhood since completion of 1988 and 1991 RIs.
  - WDE Landfill GW flow maps show a localized north/northeasterly flow in the various water bearing units
  - Regional GW flow direction (obtained from MPCA hydrogeologist) is west/northwest in the northern portion of the South Andover Site
- Uncertainty due to potential interconnectivity between upper and lower aquifers
  - The middle clay aquitard is NOT composed completely of clay but have silt and silty sand layers - cannot assume it's continuous and impermeable
  - The 1988 RI stated a strong vertical gradient downward in the aquitard - estimated contaminant could reach the lower sand aquifer in ~30-70 years

UPPER SAND AQUIFER - '88 RI

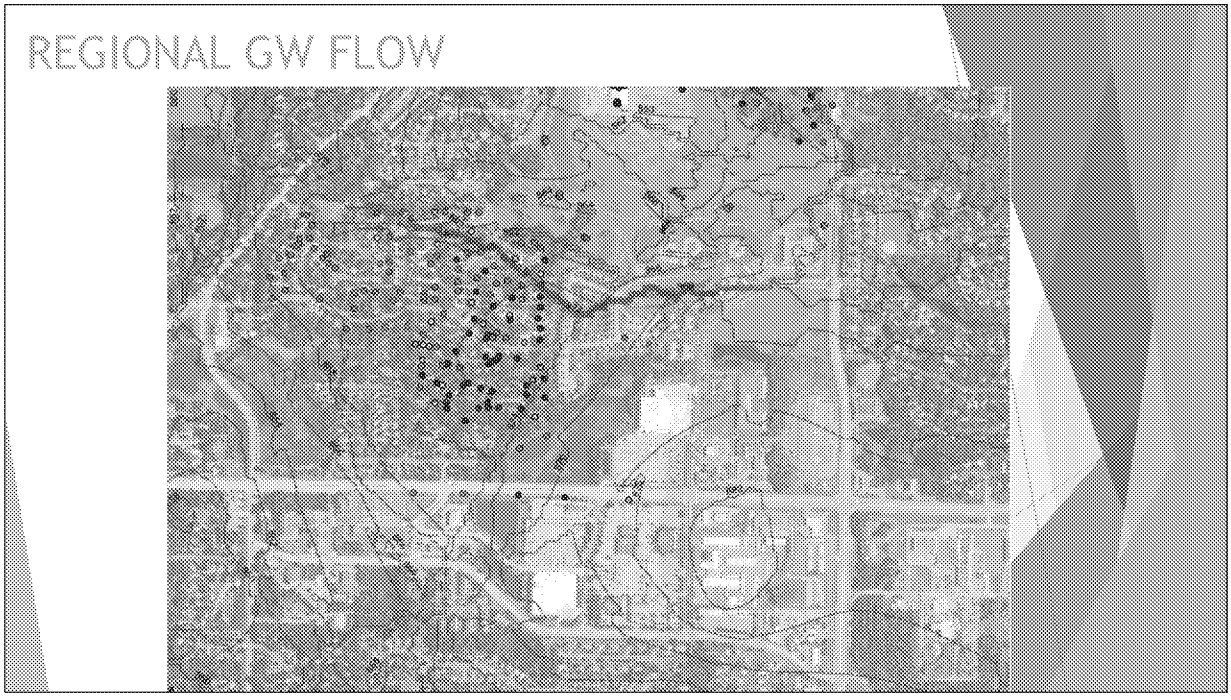


0 400 800
Scale in Feet

LEGEND
RMT /Pedco Well
FIT Well
EI Well

Water Table Elevation
DDSA Well Elevation
Wetland Water Elevation

FIGURE 5-16
WATER TABLE CONFIGURATION
FEBRUARY 20, 1986
CONTOUR INTERVAL 1 FT. - DATUM MSL



Metro Model 3 uses data from multiple sources (MNDNR, USGS, county well index)

EPA's Position

- **Ex. 5 DP / Ex. 7(A)**
- There is a data gap on determining the GW flow in the upper and lower sand aquifers along the northern portion of the Site
- 1,4-dioxane (840 ug/L) along Bunker Lake Blvd at the 100'bgs ~middle clay aquitard, shows there may be high storage of contaminants in the aquitard
- The VC plume to the southwest is a very narrow plume **Ex. 5 Deliberative Process (DP)** Ex. 5 Deliberative Process (DP)
- MPCA hydrogeologist estimated 46 million gallons of water a year pumping from the Red Oaks neighborhood that could have a significant impact on the local GW flow

Other Issues:

- Red Oaks Community has been on bottled water for 2 years - they want a resolution whether source is determined or not
- One citizen is actively seeking the media and trying to get others in the community involved in getting municipal water hookup faster
- Local newspaper is running a story on Red Oaks - South Andover has been mentioned as a possible source, WDE Landfill ruled out as a source

Options for Next Steps:

-
- **Ex. 5 Deliberative Process (DP)**
-